to go a lot more easily than the last. Precision of language and finish are out of fashion and superfluous; as they would say, they have no use for them. A narrower range suffices. Any deep background of knowledge is only a source of perplexity. Richness and abundance are uncongenial to modern pragmatism. A simpler diet, consisting largely of ready-prepared and familiar substitutes, such as home provides, is preferable. All this is very curious and most interesting to observe. The world may become more contented, but it is likely to be duller, and that simultaneously with these changes a revival of interest in the classics can occur seems highly improbable.

The Report betrays a consciousness that the subject dealt with is one wider than the nominal problem of classical education, and the members of the Committee know that they are in reality pronouncing on a great social question. They are haunted by timidity and obsessed with the democratic nostrum of equal rights and opportunities; but, though fighting for their lives, they dare not make a firm stand. They should have declared boldly that learning, classical and natural, though comprising many parts, is one indivisible whole. Never was it so urgently necessary that the unity of the intellectual world should be maintained and strengthened. The natural and permanent division of society is between them and the rest. Instead of seeing in science a competitor, the classical advocates should have welcomed natural knowledge as an indispensable and essential part of complete education. Spontaneous curiosity is, as they truly say, the only safe foundation for the continuous life of any study; but curiosity is a function of active minds, which alone are entitled to the privilege of direction. Freedom of choice is a counsel of perfection; a mere vanity unless the choosers have themselves wisdom, and the knowledge by which choice must be guided. In default, the decision must be made by informed authority, and must be enforced by compulsion.

If the continuity of civilisation is to be preserved, there can be no question of abandoning the classics, but in the name of truth and advancement no less must science be presented to all who pretend to complete education. They must acquire a "widespread knowledge, however elementary, of the ancient world," and an equally widespread knowledge of the elements of natural truth. The rudiments of classics, of natural science, and of a modern language can be easily mastered by any boy of ability before he is seventeen. The feebler will no doubt drop behind. They will find their place below.

Notes.

A Committee has been appointed by the Home Secretary to re-examine, more particularly in the light of the further information which has become available since the inquiries of the Departmental Committees appointed in 1911, the question of the danger from the use of lead paints to workers in the painting trades, and the comparative efficiency and cost, and the effect on the health of the workers, of paints containing lead and leadless paints respectively; and to advise whether any modifications of the conclusions and recommendations of those Committees have become necessary. The members of the Committee are:—Sir Henry Norman, Bart. (chairman), Mr. G. Bellhouse, Dr. O. J. Kauffmann, Dr. T. M. Legge, Mr. A. E. Munby, Dr. A. Scott, and Mr. H. O. Weller. The secretary is Mr. C. W. Price, of the Home Office, Whitehall, S.W.1, to whom any communications should be addressed.

The Air Ministry has accepted the offer of Sir Ernest Shackleton to carry out meteorological investigations and to gather topographical information during the forthcoming expedition in the *Quest*, and is affording all necessary assistance to the expedition in order that as complete information as possible may be collected. The expedition has been furnished with instruments and equipment necessary for carrying out meteorological observations, and the *Quest* has been constituted an official reporting ship of the Meteorological Office. The vessel has also been supplied with photographic apparatus and with kites similar to those employed in the investigation of the upper air over the Atlantic during the voyage of the s.s. *Montcalm* before the Transatlantic flight of the R34 in 1919. It is further proposed to take records of the temperature and pressure of the upper air by using a seaplane which is to accompany the expedition.

News from the Mount Everest Expedition in Col. Howard Bury's dispatch to the *Times* is dated from Kharta, August 4. The northern and north-western sides of the mountain appeared to offer no practicable means of ascent, and the southern side is flanked by great precipices. In the hope of finding a way on the eastern side the expedition moved its base from Tingri to Kharta. The route was by Netsogu, Rebu, across the Doyala River to Chongpu, where a region of luxuriant vegetation was reached. The new camp appears to be in the Arun Valley and is placed on an old river terrace with fine views up and down the valley. Its altitude is about 12,300 ft. A mile below the camp begin the deep gorges of the Arun. Mr. Mallory and Mr. Bullock rejoined the expedition *en route*, bad weather having compelled them to give up their plan of trying to reach Kharta by the high pass north of Mount Everest. On August 2 they began the exploration of the eastern approaches of the mountain. The weather in August was bad, but better conditions were expected in September. Yet, in spite of these difficulties, more than 9000 miles of new country have now been mapped.

The report of the Science Museum at South Kensington for 1920, which has recently been published, records the re-opening of a portion of the galleries which had been closed to the public for four years in consequence of their being occupied for the purposes of the war. But although this has rendered it possible to re-arrange some of the collections of scientific instruments and apparatus, the museum as a whole is very seriously handicapped by the inadequacy of its accommodation, which is but a third of what a committee reported in 1911 to be immediately necessary for the adequate display of the collections. A considerable number of collections have consequently been withdrawn from the exhibition galleries and placed in store, where they can be seen by visitors who express a desire to consult them. In all sections very considerable additions have been made, including a Newcomen pumping engine of 1791, a group of two hundred models of historical warships, a number of aeronautical engines, also a gravity torsion balance of the pattern designed by the late Baron R. Eötvös and the microscope by Powell and Lealand which gained the premium offered by the Royal Society in 1843. The number of visitors showed a considerable increase, but until the new museum buildings are made available the museum will become increasingly inconvenient for visitors on account of the extreme congestion of the exhibition galleries. Additions to the collections are constantly being made by gifts and loans of objects of historical or technical importance, but their instructional value is greatly diminished by the impossibility of displaying them adequately under existing conditions.

THE crafts of spinning and weaving have long been practised in the Sudan. Fragments of fine linen found by Dr. Reisner at Kerma have been dated about 2000 B.C., and he thinks that they were certainly woven in the country, though possibly by some Egyptian workmen attached to the household of one of the great noblemen who administered the country. But the manufacture of fine linen has disappeared; the modern craft is carried on in a very simple way, and the craftsman is not held in honour. A useful account of spinning and weaving at the present day is supplied in vol. 4, No. 1, April, 1921, of *Sudan Notes and Records* by Mrs. I. W. Crowfoot, who gives a full account of the appliances used, and compares them with those described by Mr. H. Ling Roth in his valuable "Studies in Primitive Looms" (Journal of the Royal Anthropological Institute, vol. 47, 1917). The trade of thread- and cloth-making has been for some time moribund in the Sudan, and Mrs. Crowfoot pleads for its encouragement as a trade for boys and as a homecraft for girls, particularly in view of the high prices and low quality of the machine-made textiles, which alone at present supply the needs of the people of the Sudan.

SMUGGLING of drugs, such as morphia, cocaine, raw opium, and Chandu, or opium prepared for smoking, is strictly forbidden in the Federated Malay States, but, as might have been expected, the prohibition has led to the use of many ingenious devices by the Chinese and Malays to evade the revenue authorities. A full list of these, with sketches, is given by Mr. W. G. Stirling in the Journal of the Straits Branch, Royal Asiatic Society, April, 1921. Clothes and walking-sticks, soles of shoes, dried walnuts, dead ducks, the dovetailing of a cabinet, a stack of saucers, a sitting hen on her eggs, a pail of rice—all have been used in some clever way for the storage of contraband Chandu.

THE influence of alcoholic grandparents upon the behaviour of white rats is the subject of an interesting paper by Messrs. E. C. Macdowell and E. M. Vicari (*Journ. Exper. Zoology,* vol. 33, No. 1, 1921, p. 209). A series of rats was alcoholised, and the grandchildren were subjected to a series of tests on finding their way in a circular maze provided with doorways, blind alleys, mirrors, etc. From the point of view of learning their way to the centre and going there for food, the test rats were found to be less successful than the controls. If this be true, a modification of the genetic basis of inheritance has been demonstrated.

THE REV. F. C. R. JOURDAIN, leader of the Oxford University Expedition to Spitsbergen, tells a woeful tale in the *Times* of August 25 of the depredations of egg-collectors among the nesting-birds of Spitsbergen. The introduction of oil-engines into sealing sloops has enabled them to work practically the whole of the west and north coasts of Spitsbergen with little danger of their being trapped by drift-ice. They have thus been able systematically to clear the nests of the large colonies of eider-ducks breeding there. One boat was met which had 15,000 eggs of the eider-duck on board! Examination of the colonies showed that the vast majority of the nests contained one or, at most, two eggs. With the brent goose the state of things was even worse. The large colonies which were known to nest on some of the eider holms as lately as 1908 have disappeared entirely, and the survivors scattered to nest in isolated pairs on the mainland, there to fall victims to the Arctic fox. Colonies of eider-ducks on the more inaccessible parts of Spitsbergen provided a welcome contrast. Here the nests contained an average of six eggs each, the largest number in a single nest being thirteen, and the busy scene of life on an untouched eider colony provided a glimpse of the Spitsbergen of the past, before the coming of the oil-engine and the coal prospector. The article is illustrated by admirable photographs of nesting birds obtained by the party.

THE American marsupial Cænolestes has always been something of a puzzle to students of mammalia, being variously regarded as a diprotodont, as a special type of subordinal rank the diprotodont characters of which are convergent, and as an aberrant polyprotodont. In view of such divergent views on its affinities, a more detailed study of its characters was desirable, and Mr. W. H. Osgood has supplied this need (Field Museum of Natural History, Zoological Series, vol. 14, No. 1). He regards Cænolestes as a surviving member of an ancient group, retaining many primitive features and exhibiting no marked degree of specialisation. It bears no special affinity to the American Didelphyiidæ, but shows many resemblances to the Australian peramelids, though it has advanced beyond them to greater morphological similarity with the specialised diprotodonts. Its ancestor was probably a northern form which had already separated from the generalised polyprotodont stock, possibly extended all over Holarctica, and may, therefore, have given rise to the Australian diprotodonts. Mr. Osgood is therefore led to support the Holarctic origin of the mammalia so powerfully advocated by Matthew in 1915. He concludes that Cænolestes must be classified as a diprotodont marsupial belonging to a special subfamily of its own in the family Palæothentidæ, the approximate position assigned to it by Osborn in 1910, but suggests that, in view of its resemblances to the peramelids, it may be necessary later to remove the latter from the polyprotodonts and to unite them with Cænolestes in a special group of equal value with the Australian Diprotodontia and the remaining Polyprotodontia. Mr. Osgood's conclusions are supported by Prof. C. J. Herrick from a study of the brain of Cænolestes. His results, published as an appendix to Mr. Osgood's work, show that the brain of Cænolestes resembles most closely those of Perameles and Notoryctes, and is more simply organised than that of any Australian diprotodont.

The Note of the Financial Adviser to the Egyptian Government on the Budget of 1921–22 (Cairo, May, 1921) is of interest for the stress which it lays on the importance of scientific research in Egypt. A country of a restricted habitable area and with a population ten times as large as it would naturally support needs all the assistance that scientific knowledge and technical skill can give. The importance of conducting research in various fields is so great, and its omission will be so dearly paid for, that nothing should be allowed to hamper its steady prosecution. The spheres in which such investigations are already proceeding are principally the study of the Nile and the rainfall which feeds it; the improvement of the cotton plant; the prevention of disease among the population, and the application of the knowledge which has been gained of bilharzia and ankylostoma to the improvement of village life; the study of the fish-life in the lakes, waterways, and territorial waters of the country as bearing on an important food-supply which could be largely developed; and the exploration of the desert regions for further deposits of petroleum, since Egypt is otherwise dependent upon imported fuel. Registration of title to land has become an urgent need, not only to facilitate transactions in landed property, but also to enable re-assessments of land tax to be made rapidly, and to provide the means of quickly and accurately collecting crop statistics, which are of the greatest importance, not only to the agriculturist, but also to the irrigation engineer who has to distribute the water, and to the Government in the interest of public economy and of public finance. There is probably no country where properly directed scientific research gives so prompt and abundant a return for expenditure made upon it as Egypt.

The Nile Commission during its sittings in Cairo last year received a memorandum from a committee of Egyptian engineers which dealt with various matters relating to the irrigation projects under consideration by the Commission. The committee has now published an English translation of a communication which it has forwarded to Adly Yeghen Pasha, the Egyptian Prime Minister, in which it criticises some of the conclusions of the Commission. The principal contentions would appear to be that the additional water required for Egypt can be stored by a heightened Aswan Dam; that Egypt has a claim to all the water she requires or may require before the Sudan can use the supply which flows through it; and that irrigation works in Egypt itself are more important than the proposals for utilising the Nile supply as a whole. The outlook seems to be rather too narrow a one, for the subject needs to be examined in all its bearings, agricultural as well as irrigational, while the ever-increasing demand for water necessitates accurate hydrographical studies of the whole basin. We understand that the Egyptian Government has appointed a Special Committee to study the whole question in all its bearings, and to recommend how the various interests can best be served. Mr. C. E. Dupuis, formerly Inspector-General of Sudan Irrigation and Water Adviser to the Egyptian Ministry of Public Works, will be the chairman, and will be assisted by scientific and technical members. This Committee will doubtless examine carefully and critically the proposals which the committee of Egyptian engineers is supporting.

Mr. Alex. B. MacDowell has examined the records of temperature at Greenwich with regard to the incidence of very warm and very cold months in the seven years of sun-spot maxima, 1848–1917, and the same number of years of sun-spot minima, 1843–1913. Taking a very warm month as one with mean temperature more than 3° above average and a very cold month as one more than 3° below, he finds thirteen very warm months and twenty very cold ones (thirty-three together) in the years of maxima of sun-spots as compared with four very warm and nine very cold (thirteen together) in the years of minima. In sending us a communication on this subject Mr. MacDowell asks:—"How is it that both very warm and very cold months turn up so much more frequently when the sun is disturbed than when it is quiet?"

Climatology in California is dealt with in the U.S. *Monthly Weather Review* for April, 1921, by Mr. A. H. Palmer, Meteorologist to the Weather Bureau at San Francisco. Eleven regular first-class stations are maintained in the State, and there are also about three hundred climatological sub-stations, at most of which the observers are voluntary. Special attention is paid to precipitation data, this being the most important element of climate in California. Various educational and research institutions also maintain climatological stations. The University of California has four precipitation and two evaporation stations. Certain stations are maintained primarily for agriculture; nearly all the large citrus-growing regions have climatological stations, and the instruments are usually situated in or near the fruit groves.

Climatology has contributed largely to the successful introduction of the date-palm, for this tree requires tropical or semi-tropical weather conditions and very little water; the palms will flourish in what appears to be a sandy desert provided the temperature conditions are favourable. About two hundred and fifty Southern Pacific railway station agents also keep temperature and precipitation records. The author mentions that a San Francisco instrument manufacturer has sold more than a thousand rain-gauges, and rainfall records are readily maintained.

TECHNOLOGIC Paper No. 192 of the Bureau of Standards, Washington, consists of an account by Dr. G. K. Burgess, of the Bureau, of the tests of six hollow cylindrical steel castings manufactured by the centrifugal process. The castings were 6 ft. long and of diameters up to 18 in., with holes of various diameters through them; they were made with the mould revolving about the axis at a speed not specified. Samples of the metal taken from different parts of the complete castings were tested for hardness, tensile strength, soundness, structure, and density, both in the condition as cast and after heat treatment of various kinds. It was found that there was a slight segregation of carbon, phosphorus, sulphur, nickel, and copper in the radial direction, but none of manganese and silicon. Small blowholes were evident in the inner 1/16 in. of the castings. After heat treatment several of the castings showed mechanical strength equal to forged materials of the same composition, and satisfied the ordnance requirements for gun forgings. Microscopic examination showed no hard spots, flaws, or other defects outside the layer 1/16 in. thick at the inner surface, and the process appears to be one of great promise.

MESSRS. DUCKWORTH AND CO. include in their autumn list of forthcoming books "The Wheat Plant: A Monograph," by Prof. J. Percival. Part 1 will deal with the botany of the plant and its various parts, and part 2 with the methods of cultivation of the different varieties, with chapters also on hybridisation, breed, and yield. Another work promised by the same publishers is "The Great White South: Being an Account of Experiences with Captain Scott's South Pole Expedition, and of the Nature Life of the Antarctic," by H. G. Ponting, with an introduction by Lady Scott.

THE Cambridge University Press is bringing out in the autumn for Major Leonard Darwin a small work entitled "Organic Evolution: Outstanding Difficulties and Possible Explanations," being a collection of brief notes on biological matters arising from "The Origin of Species."

Our Astronomical Column.

THE AUGUST METEORIC DISPLAY.—Another proof of the unusually abundant display of August meteors belonging to the Perseid shower is provided by observations made by Mr. P. Meesters at Halfweg (near Amsterdam–Haarlem), Holland, with an outlook from north-west by north to east.

On August 11, watching from 9.15 until 11.15 A.M.T., Mr. Meesters counted twenty-eight meteors, viz. 2, 3, 4, 2, 1, 5, 7, 4, during each quarter of an hour. On August 11, watching from 9.15 until 10.15 A.M.T., thirty-nine meteors were seen, viz. 6, 17, 9, 7. At 9.29 A.M.T., in two seconds, four meteors were seen equal to Venus or Jupiter. Clouds came over the sky at 10.15 A.M.T. From 11.30 until 1.45 A.M.T. Mr. Meesters counted 286 meteors, viz. 60, 68, 54, 50, 54, in each quarter of an hour. On August 12, watching from 9.15 until 10.15 A.M.T., he counted 4, 7, 6, 1 objects in each quarter of an hour; clouds coming over the sky prevented further observations. On August 13, from 1.45 until 2 A.M.T., three Perseids were seen between drifting clouds. Several of the Perseids were equal to, or brighter than, stars of the first magnitude. The maximum display was thus in the latter part of the night of August 11.

THE BRIGHT OBJECT NEAR THE SUN.—Two observations of this object were made in England on August 7, some hours before that at Mount Hamilton. The first (communicated by Col. Markwick) was made by Lieut. F. C. Nelson Day and others at Ferndown, Dorset, about 7h. G.M.T. Its magnitude was estimated as *minus* 2 and its distance from the sun as 4°.

Mr. S. Fellows observed it at Wolverhampton with binoculars shortly after sunset (*Eng. Mech.*, August 19). He noted it as reddish, elongated towards the sun, from which it was distant 6°. The estimates of distance are probably too rough to use for the deduction of motion. It may be noted that a comet with retrograde motion near the plane of the ecliptic and small perihelion distance approaching the sun from behind might remain in close proximity to it the whole time that it was bright.

Astr. Nach. No. 5116 contains full particulars of the luminous bands seen at the Königstuhl and Sonneberg Observatories on August 8d. 12h. G.M.T. It appears probable that they were auroral, especially as Prof. M. Wolf noted a similar appearance on August 5, 11h. 15m. to 11h. 36m. G.M.T. It was "a long, very bright cloud west of the Pleiades, brightest near δ Arietis . . . it faded rapidly, only a trace visible at 11h. 36m."

MINOR PLANETS.—The planet (7) Iris is in opposition this month, and as its magnitude is 7·2 it is within reach of binoculars. The following ephemeris for Greenwich midnight is by M. Michkovitch (Marseilles Circ. No. 512), with corrections of +0·4m., +4′, deduced from an Algiers observation on August 16:—

	R.A. h. m.	N. Decl. ° ′	log r	log Δ
Sept. 9	23 29·3	8 44	0·295	9·993
14	23 25·1	8 23		
19	23 20·7	7 57	0·290	9·981
24	23 16·5	7 26		
29	23 12·7	6 52	0·286	9·982

Perihelion passage will be early in 1922.

Astr. Nach. No. 5116 contains the names assigned by Prof. M. Wolf to seventeen planets discovered by him in recent years. Planets 834 and 907 are named respectively Burnhamia and Barnardiana after the two famous American astronomers.